

## CLAIMS

What is claimed is:

1. A device for optically initiating a combustive reaction with a slurry fuel and air mixture, said device comprising:
  - 5 an optical energy source;
  - a combustion chamber containing the slurry fuel and air mixture therewithin;
  - a transfer device for optically interconnecting said optical energy source with said combustion chamber; and
  - 10 wherein said optical energy source generates an output for interacting with the slurry fuel and air mixture to create a combustive reaction.
2. The device according to Claim 1, wherein said output includes a pulse having a leading edge and a trailing edge, said leading edge having  
15 higher power than said trailing edge.
3. The device according to Claim 1, wherein said output includes a first and second pulse, said first pulse having higher power than said second pulse.  
20
4. The device according to Claim 3, wherein said first pulse is injected a predetermined time prior to said second pulse.
5. The device according to Claim 4, wherein said predetermined  
25 time is less than ten (10) nanoseconds.
6. The device according to Claim 1, wherein said optical energy source includes a laser.
7. The device according to Claim 1, wherein said delivery device  
30 includes a fiber optic.
8. The device according to Claim 21, wherein said fiber optic includes a fiber optic bundle.

9. The device according to Claim 1, wherein said output includes light.

10. The device according to Claim 9, wherein said light includes a laser beam.

11. The device according to Claim 9, wherein said light comprises wavelengths less than 300 Nanometers.

12. The device according to Claim 1, wherein said output is greater than one (1) Megawatt.

13. The device according to Claim 1, wherein said combustive reaction yields a dissociated mixture.

14. The device according to Claim 1, wherein said combustive reaction yields a mixture of molecular and atomic oxygen and chemically cracked fuel.